

## **INFORMATION DISCLOSURE STATEMENT**

The Office states the Information Disclosure Statement filed on July 14, 2004 fails to comply with 37 CFR 1.98(a)(2) which requires a legible copy of each cited foreign patent document and each non-patent literature publication and all other information or that portion which caused them to be listed. In response, Applicant has submitted an Information Disclosure Statement and will provide copies of cited documents as soon as they are received. The documents should be in shortly.

## **ABSTRACT**

The Abstract of the disclosure is objected to because it is not limited to a single paragraph within a range of 50 to 150 words. In response, Applicant submits a replacement Abstract listed on a separate sheet of paper as requested by the Office.

## **REMARKS**

Claims 1-15 were presented for examination. Claims 1-15 were rejected and Claims 8 and 9 were objected to.

Claims 1-15 were rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In response, Applicant notes that the estimate of the component that is common to the data series may be used in numerous applications, in particular in 4D seismic surveying (see paragraph [0046]). It serves in particular to eliminate non-repeatable acquisition artifacts (see paragraph [0047] and [0051]). Furthermore, this estimate of the component that is common to the data series may also allow determining the residual components corresponding to the difference between the initial data and said estimated common components (see paragraph [0054]). It is thus possible to deduce a resolution of the data series by using the estimate. The resolution of

the data series may then be used in different application for determining the topography of the subsoil. In view of the above, it is considered that the invention as defined in Claim 1 satisfies 35 U.S.C. 101. Therefore, claims 1-15 should be in allowable form.

Applicant cites *In re Taner*, 681 F.2d 787 (C.C.P.A. 1982).<sup>1</sup> In that case, the applicant's invention was similarly related to a method of seismic exploration. *Id.* at 787. The claims were likewise rejected under 35 U.S.C. § 101 for reciting nothing more than a mathematical calculation. *Id.* at 790. The C.C.P.A., the predecessor court to the Court of Appeals for the Federal Circuit, explained that claims such as the ones in this application set forth a process and were within § 101:

Appellants' claims are not in our view merely directed to the solution of a mathematical algorithm. Though the claims directly recite an algorithm, summing, we cannot agree that appellants seek to patent that algorithm in the abstract. Appellants' claims are drawn to a technique of seismic exploration which simulates the response of subsurface earth formations to cylindrical or plane waves. That that technique involves the summing of signals is not in our view fatal to its patentability. Appellants' claimed process involves the taking of substantially spherical seismic signals obtained in conventional seismic exploration and converting ("simulating from") those signals into another form, i.e., into a form representing the earth's response to cylindrical or plane waves.

*Id.* at 790. Similarly, in *In re Sherwood*, the court held that a method for producing a cross-sectional map (or "seismic depth section") depicting the position and shape of those subsurface formations, was statutory subject matter under § 101. 613 F.2d 809 (C.C.P.A. 1980). The court explained, "The claimed invention, contrary to the solicitor's arguments, converts one physical thing into another physical thing just as any other electrical circuitry would do." *Id.*

---

<sup>1</sup> See *South Corp. v. United States*, 690 F.2d 1368, 215 U.S.P.Q. 657 (Fed. Cir. 1982) (the in banc court stated unanimously at the outset of the opinion that "the holdings of our predecessor courts, the United States Court of Claims and the United States Court of Customs and Patent Appeals, announced by those courts before the close of business September 30, 1982, shall be binding as precedent in this court.").

Claim 8 was objected to under 37 CFR 1.75 as being a substantial duplicate of Claim 3. In response, Applicant states that Claim 8 depends on Claim 1 whereas Claim 3 depends on Claim 2 which depends on Claim 1. Thus, the object of Claim 8 (= 1 + 8) is different from the object of Claim 3 (= 1 + 2 + 3). In view of the above, it is considered that Claim 8 satisfies 37 CFR 1.75. Therefore, Claim 8 should be in allowable form.

Claim 9 was objected to under 37 CFR 1.75 as being a substantial duplicate of Claim 4. In response, Applicant states that Claim 9 depends on Claim 8 which depends on Claim 1 whereas Claim 4 depends on Claim 3 which depends on Claim 2 which depends on Claim 1. Thus, the object of Claim 9 (= 1 + 8 + 9) is different from the object of Claim 4 (= 1 + 2 + 3 + 4). In view of the above, it is considered that Claim 9 satisfies 37 CFR 1.75. Therefore, Claim 9 should be in allowable form.

Claims 1-15 were rejected under 35 U.S.C. §102(b) as being anticipated by “Ordinary Cokriging Revisited”, by Goovaerts. More particularly, the Office considers that Claim 1 is anticipated by pages 22-23 of Goovaerts. Goovaerts discloses a method for determining an estimate  $Z^*_{SCK}$  (see page 22 equation (1)) using primary and secondary attributes  $z_1$  and  $z_2$ . However, Goovaerts does not disclose determining an estimate of the component that is common to the data series. On the contrary, in Goovaerts, the estimate  $Z^*_{SCK}$  of equation (1) is an estimator of  $z_1$  and not an estimate of  $z_1$  and  $z_2$ . See page 22, line 31, “The simple Cokriging (SCK) estimator of  $z_1$  at location  $u$  is written (...).” The fact that the estimator of Goovaerts is not an estimator of the component that is common to the data series  $z_1$  and  $z_2$  also appears from the error variance equation mentioned at page 23 of Goovaerts, since this error variance does not comprise any terms relative to

$z_2$ :

$$\sigma_u^2 = Var\{Z^{(1)*}_{SCK}(u) - Z_1(u)\}$$

Further, Goovaerts does not describe deducing a resolution of the data series from the estimate. Indeed, since Goovaerts does not describe determining the estimate defined in Claim 1, Goovaerts does not describe deducing a resolution of the data series from this estimate. The determination of an estimate of the component that is common to the data series allows proposing a filtering technique using Kriging analysis that can be implemented in automatic or almost automatic manner, see application paragraph [0021]). Therefore, claims 1-15 should be in allowable form.

In commenting on the references and in order to facilitate a better understanding of the differences that are expressed in the claims, certain details of distinction between same and the present invention have been mentioned, even though such differences do not appear in all of the claims. It is not intended by mentioning any such unclaimed distinctions to create any implied limitations in the claims. Not all of the distinctions between the prior art and applicant's present invention have been made by applicant. For the foregoing reasons, applicant reserves the right to submit additional evidence showing the distinction between applicant's invention to be unobvious in view of the prior art.

The foregoing remarks are intended to assist the Office in examining the application and in the course of explanation may employ shortened or more specific or variant descriptions of some of the claim language. Such descriptions are not intended to limit the scope of the claims; the actual claim language should be considered in each case. Furthermore, the remarks are not to be considered to be exhaustive of the facets of the invention which are rendered patentable, being only examples of certain advantageous features and differences which applicant's attorney chooses to mention at this time.

The Office is authorized to charge the petition fee and any other fees or credit any overpayment for this matter to the Deposit Account of Adams and Reese, LLP, Account No. 50-2413.

Reconsideration of the application as amended and allowance thereof is requested.

Please send all future correspondence regarding the above-referenced application to the undersigned at the address appearing below.

Respectfully submitted,



---

David M. Ostfeld, Reg. No. 27,827  
Attorney for Applicant  
Adams and Reese LLP  
4400 One Houston Center  
1221 McKinney  
Houston, Texas 77010  
Tel: (713) 308-0128  
Fax: (713) 652-5152